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THE  
THIRTY-FIFTH ANNUAL REPORT  
OF THE  
BOARD OF DIRECTORS  
OF THE  
ZOOLOGICAL SOCIETY  
OF PHILADELPHIA.

(INCORPORATED MARCH 21ST, 1859.)

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READ AT THE ANNUAL MEETING OF THE MEMBERS AND LOAN-  
HOLDERS OF THE SOCIETY.

APRIL 25th, 1907.

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*A* PHILADELPHIA:  
PRESS OF ALLEN, LANE & SCOTT,  
1211-1213 Clover Street.  
1907

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# THE ZOOLOGICAL SOCIETY OF PHILADELPHIA.

(FAIRMOUNT PARK.)

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## BOARD OF DIRECTORS:

ELECTED BY THE SOCIETY.

CHARLES PLATT,  
*President.*

WILLIAM H. MERRICK,

HENRY T. COATES,  
*Treasurer.*

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SAMUEL G. DIXON, M. D.,  
*Vice-President.*

CHRISTIAN C. FEBIGER,  
*Vice-President.*

ARTHUR ERWIN BROWN,  
*Secretary.*

THOMAS BIDDLE, M. D.,

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D. M. BARRINGER,

WILLIAM D. WINSOR,

NORTON DOWNS, M. D.,

W. B. CADWALADER, M. D.,

ROBERT G. LE CONTE, M. D.,

HENRY PRATT MCKEAN.

ELECTED BY THE CITY COUNCILS.

RICHARD H. HARTE, M. D.,

ALFRED GRATZ.

## GENERAL MANAGER.

ARTHUR ERWIN BROWN.

## SUPERINTENDENT OF THE GARDENS.

ROBERT D. CARSON.

## SOLICITOR.

W. W. MONTGOMERY.



# REPORT

## OF THE

# BOARD OF DIRECTORS.

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PHILADELPHIA, April 25th, 1907.

The Board of Directors of the Zoological Society of Philadelphia presents to the members and loanholders its thirty-fifth annual report, for the year ending February 28th, 1907.

### GENERAL AFFAIRS AND FINANCES.

The number of members at the close of the year was:—

Annual members.....	216
Life members.....	1,292
Corresponding members.....	6
Honorary members.....	15
Perpetual members.....	250
Junior members.....	66
<hr/>	
Total members.....	1,845

The following is a report in detail of the admissions and receipts for the year:—

Adults (paying at gates).....	153,033
Children (paying at gates).....	43,718
Members (including life and annual members, loanholders' annual, and complimentary annual tickets)	832
Loanholders' single tickets.....	11,965
Free admissions (charitable institutions, donors' tickets, &c.)*.....	3,256
Coupon tickets.....	224
Excursion tickets.....	1,788
<hr/>	
	214,816

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\* In addition to these, 125,000 tickets were issued to the Board of Education, for the admission of pupils of the Public Schools.

*Monthly Record of Receipts from Admissions for 1906-1907  
with corresponding account for 1905-1906.*

MONTH	1905-1906	1906-1907	COMPARISON
March.....	\$1,491 75	\$1,164 70	Decrease.... \$327 05
April.....	3,214 60	3,112 30	“ .... 102 30
May.....	3,493 40	3,655 40	Increase.... 162 00
June.....	2,629 05	2,921 05	“ ..... 292 00
July.....	3,605 40	3,737 75	“ ..... 132 35
August.....	5,162 65	4,691 90	Decrease.... 470 75
September..	4,691 15	5,329 80	Increase.... 638 65
October....	3,255 15	2,220 60	Decrease.... 1,034 55
November..	1,706 70	1,883 25	Increase.... 176 55
December..	1,182 60	1,105 90	Decrease.... 76 70
January....	932 20	991 75	Increase.... 59 55
February...	888 65	737 30	Decrease.... 151 35
	\$32,253 30	\$31,551 70	Decrease.... \$701 60

In November last the City Councils coupled with the appropriation the provision that each branch of the Councils should be represented upon the Board of Directors by one member. This proposition met with cordial acceptance from the Board, which at once made the necessary arrangements for their reception, and in January Select Council elected Dr. Richard H. Harte as its representative, and at the same time Mr. Alexander M. DeHaven was elected by Common Council.

The increased cost of practically every element entering into the maintenance of the Garden has severely taxed its resources. The Treasurer's statement shows a deficit of nearly \$3000 in the operations of the year. An increase of \$2500 was made in the city appropriation for the purchase of Public School tickets for the ensuing year, and the possibility of a further deficiency must be met by the utmost economy consistent with proper preservation of the collections.

## GARDENS AND MENAGERIE.

The number of animals exhibited during the year was:—

Mammals.....	521
Birds.....	822
Reptiles.....	1,009
Batrachians.....	113
	<hr/>
	2,465

For reasons not altogether evident, the variety of species available in all classes of animals has been less than usual, and the number new to the collection has been relatively small.

## MAMMALS.

1. *Elurus fulgens* F. Cuv. Panda.  
 Hab., eastern Himalayas.  
 One female. Purchased April 26th.  
 This species quite definitely appears to be related to the raccoons, in which case it is the only member of the family now existing outside of America. Fossil remains have been found, however, in England, which indicate a much wider extension of panda-like forms in an earlier period.
2. *Dipodomys elator* Merr. Loring's Kangaroo Rat.  
 Hab., northern Texas.  
 Two specimens of this showy species received from Seymour, Baylor County, Texas, in August.
3. *Reithrodontomys griseus* Bailey. Little Grey Harvest Mouse.  
 Hab., central Texas.  
 Four examples, also from Seymour, seem to belong to this recently described species.
4. *Peromyscus attwateri* J. A. Allen. Attwater's White-footed Mouse.  
 Hab., western Texas.  
 In many cases identification of these small living rodents can be only provisional. Two mice from

Seymour, received in November, seem to belong here.

5. *Oreas canna livingstonii* Scl. Livingstone's Eland.

Hab., East Africa.

The Society has been without this splendid species, largest of the antelopes, since 1889. In October a pair just completing their growth were purchased and form the most important accession of the year. They belong to a geographical race found north of the Zambesi River, marked by a variable number of pale vertical stripes on the sides. This pair came from northern Rhodesia.

6. *Gazella euchore* (Forst). Springbok.

Hab., South Africa.

One male. Purchased October 17th.

This gazelle, formerly vastly abundant, is now extinct over a large portion of its former range.

## BIRDS.

7. *Munia flaviprymna* Gould. Yellow-rumped Finch.

Hab., northern Australia.

Two specimens. Purchased May 24th.

8. *Lagonosticta larvata* (Rupp). Masked Waxbill.

Hab., northeast Africa.

Three specimens. Purchased May 24th.

9. *Serinus leucopygius* (Sund). Singing Seedeater.

Hab., Africa.

Two specimens. Purchased May 24th.

10. *Antrostomus vociferus* (Wils). Whip-poor-will.

Hab., eastern United States.

One specimen. Presented September 24th by Mr. W. S. Bennett, Philadelphia.

11. *Pipile jacutinga* (Spix). White-crested Guan.

Hab., southeast Brazil.

One specimen. Purchased April 26th.

12. *Pipile cufubi* (Natt). Amazonian Guan.

Hab., Lower Amazon.

One specimen. Purchased April 26th.

## REPTILIA.

13. *Clemmys marmoratus* (B. and G.). Pacific Terrapin.  
Hab., California to Washington.  
Four examples. Presented on October 9th by Mr. Frederick H. Shelton.
14. *Testudo nigrata* (D. and B.). Blackish Elephant Tortoise.  
Hab., Galapagos Islands.  
One specimen weighing about one hundred pounds, purchased April 27th.
15. *Testudo pardalis* (Bell). Leopard Tortoise.  
Hab., Africa.  
Two specimens. Purchased April 27th.
16. *Basiliscus vittatus* (Wieg). Banded Basilisk.  
Hab., Central America.  
Two specimens of this interesting lizard were presented June 21st by Mr. Raymond L. Ditmars, of the New York Zoological Society.
17. *Ophibolus zonatus* (Blain). California King Snake.  
Hab., California.  
One specimen. Purchased June 20th.
18. *Sibon septentrionalis* (Kenn). Ringed Snake.  
Hab., eastern Mexico and Texas.  
One specimen. Received May 7th from Brownsville, Texas.
19. *Vipera nasicornis* (Shaw). Nose-horned Viper.  
Hab., West Africa.  
One specimen. Purchased June 15th.

## BATRACHIA.

20. *Hyla regilla* (B. and G.). Pacific Tree Toad.  
Hab., Alaska to California.  
Four specimens from Santa Cruz County, California.  
Purchased January 4th.
21. *Autodax lugubris* (Hall). Side-spotted Salamander.  
Hab., California.  
Four specimens. Purchased January 4th.
22. *Plethodon oregonensis* (Girard). Oregon Salamander.  
Hab., Oregon and California.  
One specimen, from Santa Cruz County.

Other accessions which may be mentioned were:—

A second example of the one-banded toucan (*Pteroglossus aracari*), purchased March 16th.

On April 26th a fine female black leopard was received and on May 3d three young sloth bears from India.

A male Arabian gazelle was presented May 18th by the crew of the U. S. S. "Brooklyn."

On June 15th a male Malayan tapir about two-thirds grown was received by purchase. This species has not been represented in the collection since 1876.

A pair of gibbon apes, purchased on July 26th, have attracted much attention in the corner room of the small Mammal House. The male is a typical example of the white-handed gibbon (*Hylobates lar*) from the Malay Peninsula. The female is of a uniform gray color, common in many of the genus, and is probably of the same species, although it was not possible to trace the animals beyond Singapore, whence they were shipped. They appear to be adult. The activity of these apes is well known and the cries uttered by the female, usually in the morning, are astonishing.

A Malayan civet was presented on August 8th by Mr. Alfred R. Heath of the S. S. "Lackawanna."

On September 10th a lioness, two and a half years old, was purchased, and in November a pair of these animals, about the same age, were secured.

On October 5th a bull and cow elk with a calf were received as a gift from the New York Zoological Society. They were placed in the new enclosure in the northeastern part of the Gardens, where it is intended to establish a new herd of these animals.

A fine specimen of the boa found in Central America (*Boa imperator*) was secured in February. This species is of less dimensions than the one commonly seen and is quite different in color.

On February 19th a pair of polar bears, half grown, were received. The female previously in the Garden was given in part payment.



The following animals were bred during the year:—

- 1 baboon, hybrid between *Papio langheldi*, ♂, and *P. cynocephalus*, ♀, born December 22d.
- 7 dingos (*Canis dingo*), 6 ♂, 1 ♀, February 10th.
- 13 grey wolves (*C. mexicanus*), 5 March 22d; 8 April 4th.
- 11 coyotes (*C. latrans*). 6 April 18th; 5 April 22d.
- 4 common jackals (*C. aureus*), April 2d.
- 1 black bear (*Ursus americanus*), ♂, January 26th.
- 2 hairy-rumped agoutis (*Dasyprocta prymnolopha*), August 5th.
- 1 Attwater's white-footed mouse (*Peromyscus attwateri*), November 20th.
- 1 Chapman's zebra (*Equus b. chapmani*), ♂, March 11th.
- 1 American bison (*Bison bison*), ♀, April 30th.
- 4 Indian antelopes (*Antilope cervicapra*), 3 ♂, 1 ♀, May, July, and September.
- 1 Dorcas gazelle (*Gazella dorcas*), ♂, September 5th.
- 1 Japanese deer (*Cervus sika*), ♂, May 24th.
- 1 red deer (*C. elaphus*, ♂, June 13th.
- 2 fallow deer (*C. dama*), ♂, June 5th and 7th.
- 2 hog deer (*C. porcinus*), ♀, August 10th; ♂, October 6th.
- 1 Bactrian camel (*Camelus bactrianus*), ♀, April 16th.
- 2 Swinhoe's pheasants (*Gennæus swinhoii*), May 11th.
- 6 Amherst's pheasants (*Chrysolophus amherstiae*), May 24th, June 1st.
- 5 golden pheasants (*C. pictus*), May 25th.
- 6 Reeves' pheasants (*Phasianus reevesi*), June 8th.
- 3 Canada geese (*Branta canadensis*, June 11th.
- 7 red-headed ducks (*Fuligula americana*), August 3d.
- 8 summer ducks (*Aix sponsa*), July 12th.
- 23 brown water snakes (*Tropidonotus taxispilotus*), August 30th.
- 27 Fairie's garter snakes (*Eutænia proxima*), July 23d.
- 9 Sacken's garter snakes (*E. sackeni*), December 11th.
- 9 DeKay's snakes (*Storeria dekayi*), August 17th.

The amount appropriated by the City for permanent improvements was mostly devoted to the erection of iron fences and shelters for three large enclosures for deer and

other animals, and to renewing some of the old and outworn structures, such as the prairie dog fence, the stream for wading birds, the stream for water-fowl and the lower seal pond. These expenditures have added much to the appearance and to the facilities of the Garden.

The Zebra House, erected in 1905, was completed so late in the year that it was thought best not to install the animals until spring. The zebras and Persian asses were placed in it on April 18th. It was found during the recent winter that, though the asses were sufficiently hardy, the zebras could not endure severely wcold eather. Temporary provision was made by placing a stove in the building, but the experience makes it clear that a small heating plant is required to keep the temperature of the building above freezing point.

Disappointment has been met with in the effort to fill up the Monkey House to something like its former standard. Few of the rarer species have been offered for sale and even the more common kinds have been relatively scarce.

The tuberculin test now applied to every monkey which reaches the Gardens, has for the most part given definite results, but it has shown that quite one-half of the monkeys received are already diseased and do not get beyond the Pathological Laboratory.

It will be instructive to note the small percentage of error which has been found in our use of this test upon monkeys. In every case where the temperature reaction was considered to be definitely bad, autopsy has shown the presence of the disease. In others, where the temperature chart seemed of doubtful significance, and the animals were sacrificed to gain necessary light, it was present in all but two cases.

It can not of course be asserted that in no case has a tuberculous monkey failed to react, but there is little reason to suspect that this has occurred, and in any event such cases are certainly very few.

Among lemurs the reaction seems less definite, but the comparatively small number as yet treated leaves the question open to further observation.

Although the necessity of condemning at times a rare specimen is severely felt, the system has been in no way relaxed, and there can be no doubt of its wisdom.

Among wild animals accurate diagnosis is usually out of the question; the action of drugs is little known, and their harmless administration is often impossible. Indeed it is a safe deduction from the conditions revealed by autopsies, that in a majority of cases by the time disease has advanced to the point of becoming externally noticeable, it has gone beyond the reach of medical treatment.

Preventive measures must, therefore, be the main defence against a high death rate in zoological gardens, and their study under exact methods is becoming one of the leading problems to be dealt with. In so far as they relate to communicable diseases, so closely similar are they to like questions affecting the human race, that some surprise must be felt at the small number of pathologists and hygienists who as yet take active interest in them.

The death list has not been large, but included a bison cow bred in the Gardens in 1885, and a bull bred in 1899; two wild boars which had been in the collection fifteen years; a very large male dromedary, somewhat aged when it was received in 1897, and the exceptionally fine lioness "Trilby," whose loss is much regretted.

The thanks of the Directors are due to all persons from whom gifts and courtesies have been received.

By order of the Board,

ARTHUR ERWIN BROWN,

*Secretary.*

## INCOME AND EXPENDITURES.

For fiscal year ending February 28th, 1907.

## INCOME.

Members' fees and dues.....	\$950 00	
Admission receipts.....	31,551 70	
Rents at Gardens.....	250 00	
Interest.....	1,266 88	
Sale of animals.....	300 00	
Sale of guide books.....	410 55	
Goat and donkey rides.....	1,297 40	
Sundry receipts.....	1,503 51	
Return of insurance premiums.....	1,168 41	
Received from the City of Philadelphia through the Commissioners of Fairmount Park.....	17,500 00	
		<hr/> \$56,198 45

## EXPENDITURES.

(Exclusive of Permanent Improvements, &amp;c.)

Salaries and wages.....	\$22,752 43	
Office expenses.....	548 87	
General expenses.....	29,040 63	
Purchase of animals.....	6,836 40	
		<hr/> \$59,178 33
Balance to debit of profit and loss.....	2,979 88	
		<hr/> \$56,198 45

## CAPITAL.

For fiscal year ending February 28th, 1907.

## RECEIPTS.

Life membership.....	\$50 00	
Donation for woodchuck cage.....	177 25	
Received from the City of Philadelphia through the Commissioners of Fairmount Park.....	10,000 00	
		<hr/> \$10,227 25

## EXPENDITURES.

Woodchuck cage.....	\$177 25	
Enclosures for aquatic birds.....	3,012 65	
Prairie dog village.....	290 58	
Seal pond fence.....	474 90	
Asphalt walks.....	2,261 72	
Belgian block paving, &c.....	1,388 02	
Deer fences and shelters.....	2,572 13	
		<hr/> \$10,177 25
Balance, being excess of receipts over expenditures of capital.....	50 00	
		<hr/> \$10,227 25

HENRY T. COATES,  
*Treasurer.*

Examined and found correct, March 30th, 1907.

STOCKTON BATES,

C. P. A. for Stockton Bates &amp; Son.

# CLASSIFIED LIST OF AUTOPSIES MADE DURING THE YEAR IN THE PATHOLOGICAL LABORATORY.

These were made up of the following groups, and the numbers which follow the names of orders indicate how many of each are represented.

22 Primates.	11 Lemures.	33 Carnivora.
2 Chiroptera.	17 Rodentia.	19 Ungulata.
1 Edentata.	4 Marsupialia.	
Total mammals, 109.		

93 Passeres.	2 Picariæ.	39 Psittaci.
13 Striges.	21 Accipitres.	9 Columbæ.
14 Gallinæ.	9 Fulicariæ.	2 Alectorides.
10 Herodiones.	21 Anseres.	1 Struthiones.
1 Crypturi.		
Total birds, 237.		

3 Crocodilia.	3 Squamata.
Total reptiles, 6.	

Birds examined not belonging to the collection, 4.  
Total animals examined, 356.

The following list shows the number of cases of the main changes making up the pathological diagnosis. In some instances, contributory causes or concomitant results are also listed, but for the most part the numbers opposite the various animals represent a pronounced condition believed to be of importance in the death of the animal.

## *Diseases of the Gastro-intestinal Tract.*

Amyloid of intestinal wall.	1 bird.	
Colitis.....	1 monkey.	1 raccoon.
	1 bear.	7 birds.
	1 fox.	
Foreign bodies in intestines.	1 bird.	1 alligator.
Enteritis.....	2 bears.	2 storks (verminous.)
	1 crocodile.	72 birds.
	3 lemurs.	1 eyra.
	2 pumas.	1 monkey.
	2 wolves.	1 raccoon.
	1 binturong.	1 civet.
	1 deer.	3 foxes.
	1 lynx.	4 porcupines.
	1 peccary.	1 ratel.

Gastritis.....	1 bear.	5 birds.
	2 civets.	1 raccoon.
	1 wolf.	
Stomach. Ulcerations in...	2 gazelles.	2 kangaroos.
	1 stork.	
Stomach. Gangrene of mucous membrane.....	1 kangaroo.	
Impaction of gizzard.....	3 birds.	
Proventricle. Impaction ..	1 bird.	
Proventricle. Worms in...	18 birds.	
Perforation of intestines...	1 bird.	1 lion.
	1 deer.	
Peritonitis.....	4 birds.	1 peccary.
	1 monkey.	1 deer.
	1 antelope.	1 lion.

*Diseases of the Circulatory System.*

Atheroma.....	1 bison.	
Hypertrophy of the heart...	2 birds.	
Myocarditis.....	5 birds.	1 fox.
Pericarditis.....	4 birds.	1 porcupine.
Valvular disease.....	1 wolf.	1 bird.

*Diseases of the Liver.*

Abscess.....	2 birds.	
Cirrhosis.....	1 bird.	1 monkey.
	1 raccoon.	
Cloudy swelling.....	2 birds.	1 fox.
	1 opossum.	1 lemur.
	1 monkey.	
Fatty change.....	1 bear.	1 llama.
	2 lemurs.	1 chow dog.
	2 wolves.	1 monkey.
	9 birds.	1 fox.
	1 porcupine.	
Focal necrosis.....	8 birds.	
Pigmentation.....	1 bird.	1 iguana.
Cholangitis.....	1 gazelle.	
Cholecystitis.....	1 chow dog.	

*Diseases of the Kidney.*

Cloudy swelling.....	10 birds.	1 fox.
	1 lemur.	1 monkey.
Fatty change.....	3 birds.	2 foxes.

## Nephritis—

Acute.....	1 antelope.	2 wolves.
	1 kangaroo.	1 fox.
	1 squirrel.	1 opossum.
	16 birds.	1 gazelle.
	2 monkeys.	2 peccary.
Chronic.....	5 birds.	1 boar.
	1 deer.	1 lemur.
	1 monkey.	1 raccoon.
	1 bison.	1 camel.
	1 gazelle.	1 llama.
	1 opossum.	1 wolf.
Toxic.....	1 porcupine.	1 bear.
Acute ascending.....	2 birds.	1 lemur.
Sub-acute, diffuse, and not specifically determined.	7 birds.	1 chow dog.
	1 monkey.	1 raccoon.

*Diseases of the Lungs.*

Abscess.....	3 birds.	
Bronchitis.....	1 bird.	1 boar.
	1 civet.	
Congestion.....	4 birds.	1 civet.
	1 iguana.	1 skunk.
Edema.....	1 bird.	1 wolf.
Pneumonia—		
Lobar.....	1 boar.	
Lobular.....	1 alligator.	1 monkey.
	1 gazelle.	1 civet.
	6 birds.	1 opossum.
	1 chow dog.	
Caseous, non-tuberculous.	1 anaconda.	
Interstitial.....	1 bird.	

*Diseases of the Pancreas.*

Acute hemorrhagic pan- creatitis.....	1 fox.	1 prairie wolf.
Focal fat necroses.....	1 bird.	

*Diseases of the Spleen.*

Acute tumor.....	1 bird.	
Amyloid.....	1 bird.	
Endothelial changes.....	2 birds.	1 bear.
Fibroid changes.....	2 birds.	1 bison.
	1 bear.	1 boar.
Pigmentation.....	1 iguana.	

*Infections.*

Tuberculosis.....	12 birds.	1 llama.
	2 lemurs.	1 camel.
	2 bisons.	16 monkeys.
	1 elk.	
Acute infections of unknown character.....	1 antelope.	4 raccoons.
	1 opossum.	1 civet.
	10 birds.	1 skunk.
	1 kangaroo.	
Hemorrhagic septicæmia...	1 boar.	1 ocelot.
Septicæmia.....	1 gazelle.	
Distemper.....	2 ferrets.	
Pseudo tuberculosis.....	1 rat.	
Meningitis, acute cerebro- spinal.....	1 monkey.	
Mould infection.....	3 birds.	
"Sore mouth".....	1 anaconda.	1 boa.
Skin diseases—		
Mange.....	1 boar.	1 fox.
Undetermined.....	1 alligator.	

*Miscellaneous.*

Amyloid of muscles.....	1 bird.	
Anemia. Primary.....	1 monkey.	
Chronic passive congestion..	1 peccary.	1 porcupine.
Fibrosis. General.....	1 bird.	1 bison.
	1 wolf.	
Fright or shock.....	1 deer.	
Malnutrition.....	1 anteater.	1 duck.
Necrosis of the floor of the mouth and jaw bone....	1 kangaroo.	
Osteomalacia.....	1 monkey.	
Parasitic cysts. Unknown nature.....	1 bird.	
Senility.....	1 camel.	
Evidences of traumatism...	1 antelope.	1 bison.
	1 porcupine.	1 squirrel.
	16 birds.	1 coypu.
	1 raccoon.	1 otter.

*Cause of death not determined.*

1 antelope.	1 rat.	2 bats.
1 weasel.	44 birds.	1 monkey.
2 porcupines.	1 raccoon.	

*Post-mortem degeneration.*

3 agouti.	1 alligator.	19 birds.
1 deer.	1 porcupine.	



	<i>. Healthy.</i>	
4 lemurs.	1 marmoset.	1 monkey.
1 rat.	2 sheep.	
	<i>Not posted.</i>	
27 birds.		
	<i>Parasites.</i>	
Blood.....	8 birds.	1 lemur.
	1 marmoset.	1 squirrel.
Air sacs and eyes.....	1 coot.	
Peritoneum.....	1 monkey.	1 fox.
Stomach and intestines....	1 anaconda.	1 chow dog.
	1 eyra.	1 gazelle.
	1 lion.	1 ocelot.
	2 pumas.	1 wolf.
	8 birds.	2 civets.
	2 foxes.	1 lemur.
	1 lynx.	1 opossum.
	2 porcupines.	
Proventricle.....	18 birds.	
Trachea.....	5 birds.	
Pericardium.....	1 lemur.	

The following parasites have been observed and determined. In some other cases the genus has been determined, but the species is not yet worked out.

*Ascaris lumbricoides* in an ocelot.

*Syngamus trachealis* in a game bantam and a Reeves' pheasant.

*Filaria incerta* in sixteen parrots and one quail.

*Ascaris leptoptera* in a lion (probably a new species or sub-species of *Ascaris*.)

*Ascaris mystax* in a chow dog.

*Oxyuris microtyphlon* in small intestine of an iguana.

*Dibothriocephalus* sp. segments found in a grey fox.

The preceding classification shows the anatomical structures to have been affected to the following degree:—

Intestines.....	116	Esophagus.....	19	Spleen.....	11
Kidney.....	75	Stomach.....	19	Pancreas.....	3
Liver.....	52	Heart.....	16	Skin.....	3
Lungs.....	30	Peritoneum.....	9	Pharynx.....	1
Infectious processes, exclusive of tuberculosis	31	Post-mortem de-generation....	22	Not posted.....	27
Tuberculosis.....	35	Undetermined...	56	Healthy.....	9
Traumatism.....	23	Malnutrition....	2		

The following neoplasms have been observed during the year and the chief pathological features are given below.

*Undulated Grass Parrakeet.*

Glioma of brain with metastases in the liver.

*Green Winged Amazon.*

Tumor of kidney. This is a mass including the whole of the lowest lobe of the left kidney, about the size of the last phalanx of an adult male thumb. It is very firm and contains on section some minute white dots. On microscopical examination the kidney structure has largely disappeared, its place being taken by fibrous connective tissue. The whitish dots seen by the naked eye consist of irregularly round calcareous bodies somewhat concentrically zoned. These may be parasitic, but the possibility of a fibrous tumor with concretions is the reason for the inclusion of this tumor in this list.

*All-Green Parrakeet.*

Carcinoma Sarcomatoides of the pectoral muscle, left side. Four different diagnoses have been given by competent men upon this tumor, as follows: Spindle-celled sarcoma; carcinoma; endothelioma; and mixed carcinoma and sarcoma. The last is probably correct. The predominating cell is large and pale, with a vesicular nucleus and prominent nucleolus. These run in bundles, but nests of the same cells can be discovered in which there is no probability of a transverse section. Again, distinct nests and acini can be found. The two arrangements just described predominate in different portions of the field and may possibly not be of the same type. The cells of the strictly carcinoma-like areas approach the typical epithelial form.

*Woolless Sheep.*

Carcinoma of the lung. (See separate description.)

*Wild Turkey.*

Papillary adeno-carcinoma of ovary. This is a papillary overgrowth in acinous arrangement. In some places the malignant type predominated, in others the adenomatous arrangement. Where the papillary type is prominent, some compression of the cells has occurred as if pearl formation were about to take place.

*Civet.*

Carcinoma of the lung. (See separate description.)

*Wood Ibis.*

Fibrous tumor formation on plantar surface of foot. (Suggestive of botryomycosis.) This consists of a fibrous stroma containing many eosinophiles, and proliferated connective tissue elements and some epithelial or endothelial nests, the latter probably from the lymph channels.

This is the picture near the surface; deeper in the tissue the picture is one of necrosis accompanied by many eosinophiles, especially at the junction of these two portions. Deeper in the necrotic area are masses of chromatic filaments and bacteria in small clefts or nests. This is what gives rise to the suspicion of botryomycosis.

*Wild Boar.*

Adeno-carcinoma uteri. The predominating picture is what is known as malignant adenoma among gynecologists, but a few extra-membranous nests may be found. Connective tissue is abundant.

*Undulated Grass Parrakeet.*

Spindle-cell sarcoma of the left pectoral muscle. This tumor consists of a thin layer of sarcomatous tissue, just beneath the skin, while the center of the mass is necrotic. This latter was suggestive of tuberculosis, but no bacilli could be demonstrated in it by stain. There are metastases in the liver.

HERBERT FOX, M.D.,  
*Pathologist.*

A CASE OF TUBERCULOUS ABSCESS OF THE BRAIN.  
REPORTED BEFORE THE PHILADELPHIA NEUROLOGICAL  
SOCIETY.

REMARKS BY J. H. W. RHEIN, M. D.

EXAMINATION BY HERBERT FOX, M. D.

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The following is a preliminary report upon a case of tuberculous abscess of the brain in a young drill baboon (*Papio leucophæus*) whose symptoms were studied three days before death. A fuller report will be made later, which will be in the nature of a comparative anatomical study. The brain, in large part, has been cut in serial sections, and as a study of these sections is not quite complete, only a brief reference to the pathological anatomy will be made.

The baboon appeared to be perfectly well until October 18th, 1906, when some lameness in the anterior and posterior extremities on the right side was observed. This gradually increased, and was associated with general convulsions.

On November 30th, 1906, I made an examination, and found the following condition. The right upper and lower extremities were weaker than on the left side. On the left side the power seemed to be fair. He was able to hold on to an iron bar with the fingers of the upper and lower extremities on the right side, but in withdrawing the bar it was not difficult to overcome his grasp, and the power on this side was distinctly less than that on the left. The movements of the right arm were somewhat ataxic, as observed when he made efforts to grasp the bar. The knee jerks were increased on both sides, and appeared to be equally so. There was no evidence of facial palsy. He moved both sides of the face equally well at times when he expressed anger or fear in the facial expression. The tongue seemed to be retracted equally well on both sides.

Tests for hemianopsia were, of course, unsatisfactory, but he seemed to recognize readily the approach of the iron bar

from both sides. There was no disturbance of the rectal or bladder functions, although at the autopsy the bladder was full.

Death occurred on December 2d.

At the autopsy the brain and spinal cord, with the other organs, were examined. The dura was adherent to the left side of the brain, in the prefrontal region, in the upper third, and when the brain was removed it was observed that an area of softening lay beneath this point. A small caseous mass was also observed at the base of the right lung, and beneath the diaphragm on the right side was a large abscess, partly involving the liver. The tubercle bacillus was found in the pus removed from the area of softening beneath the left cortex.

A study of the brain revealed the presence of three foci of softening. The largest one was situated in the left hemisphere in the prefrontal region, and extended from just beneath the cortex in the upper third of the region, downward almost to the base of the brain. This area was cylindrical in shape, and measured  $2\frac{1}{2}$  centimeters in its greatest diameter. The area of softening consisted of caseated material and pus, in which the tubercle bacillus was found present.

A second area of softening was found on the right side of the brain, much smaller in extent and measuring about  $1\frac{1}{2}$  centimeters in diameter. There was no pus present in this area, but it consisted of a circumscribed mass of caseous material. The apex of this area of softening was just beneath the cortex in the prefrontal region on the right side, and in the removal of the brain the cortex was torn just above this area of caseation. This point was  $\frac{1}{2}$  a centimeter in front of the central fissure, and about 1 centimeter below the superior surface of the brain.

A third area of softening was observed posteriorly, in the white substance, in the parieto-occipital region, and measured about six millimeters in diameter.

A study of the sections of the brain shows beautifully the extent of the destruction of the brain tissue. The optic thalamus and the lenticular nucleus, and the posterior limb

of the internal capsule, on the left side, are destroyed in part. The anterior limb of the internal capsule, in one section, is preserved, notwithstanding the fact that the optic thalamus on the same side has been, in large part, destroyed. And in spite of the fact that the posterior limb of the internal capsule has been destroyed at some levels, it is interesting to note that the degeneration in the pyramidal tracts of the pons and medulla on the opposite side, and the lateral columns of the spinal cord, are not intensely—although distinctly—degenerated.

It is very interesting to note that, in view of the severe insult to the posterior limb of the internal capsule on the left side, there was not more paralysis, for it will be remembered that there was considerable power of prehension in the right upper and lower extremities.

I am not prepared to discuss the question of tuberculous abscesses of the brain, either in the baboon or in man. It is well known that tuberculous infiltrations occur in the brain substance, which may undergo cheesy degeneration. Although I have not had an opportunity, thus far, of studying the literature of the subject, my impression is that tuberculous abscesses of the brain substance itself are comparatively rare in men.

In addition, sections made through the brain tissue in the neighborhood of the large abscesses showed small foci of leucocytic and epithelioid infiltration, in which areas the tubercle bacillus could be demonstrated by stain. The same sections stained by Gram Weigert method, showed the presence of some bodies at the margins of these small collections, but these could not be identified positively as contaminating bacteria.

## TWO INSTANCES OF PRIMARY CARCINOMA OF THE LUNG IN ANIMALS.

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The two examples of primary carcinoma of the lung here reported were observed by accident, while posting a woolless sheep and a civet, that from the former having been mistaken for another condition, while that from the latter was found only by microscopic examination. The value of these cases lies in the fact that primary carcinoma of the lung in human beings is rarely seen at a stage early enough to determine the exact origin of the epithelial cells forming the nests. The metaplasia which these cells undergo, after leaving their normal arrangement, renders it difficult to determine their origin with absolute certainty when the tumor has reached the extent commonly seen in such growths of the human lung.

Indeed, it is not possible to determine the origin of the tumor in the sheep's lung, without question, inasmuch as a mistake in primary diagnosis at autopsy was responsible for cutting the section so as to lose a slice about two millimeters thick, just to the proximal side of the neoplasm. This will be described further on.

Cancer of the lung is frequently preceded or accompanied by some disturbance in the lumen of the bronchus, the most frequent change being bronchiectasis. Tuberculous cavities and bronchi obstructed by phthisical processes seem to be especially prone to malignant degeneration of their walls. Here, however, epithelioma with pearl formation is most often reported. In one of the cases (sheep) the neoplastic process is occurring around a bronchiectasis of non-tuberculous nature, but the development of the tumor sprouts and cell nests is typical of carcinoma. The absence of pearls in the tumor masses, situated as they are in a scirrhus stroma, distinctly favors the determination of carcinoma. The cellular elements predominate in the tumor of the civet's lung.

*Woolless sheep.* This animal was killed as a test of the health of a flock. The only pathologic change which could be discovered in the entire body was an area of ten by eight by eight millimeters beneath the visceral pleura of the lateral surface of the right superior pulmonary lobe. This mass was yielding to palpation, smooth, apparently not infiltrating and was cut quite easily. Upon section, a cavity three by three by four millimeters was found, filled with a thick yellow cheesy material and surrounded by a fibrous capsule 1 to 2.5 millimeters in thickness. Despite three unsuccessful attempts to demonstrate tubercle bacilli in this caseous matter, the writer made a diagnosis of encapsulated tuberculosis, a diagnosis which he was obliged to retract when the microscope revealed the following growth. Under low magnification, there was a distended bronchus, surrounded by an irregular layer of tissue, on one side about three times as thick as upon the other.

This wide band on one side is seen to contain epithelial nests and alveoli lined with epithelial cells, which are partially or wholly filled with epithelial cells.

This is undoubtedly carcinomatous. The bronchus is distended and by following it proximally it is seen to possess cartilage plates and glands, which, with the lining of the bronchiole, are apparently normal throughout. Where the cartilage and glands were present together no carcinomatous change was found. This is the widest point of the cavity, and the carcinoma is distal to this section. As one proceeds distally the bronchiectasis again narrows. Here is where the section of two millimeters is missing, and it may be that the exact origin of the neoplasm is in this narrow slice. Beyond this, the lumen of the bronchus rapidly narrows to its normal proportions. The carcinomatous tissue appears before the bronchiole returns to its normal calibre, and as the tumor is replete with connective tissue, it may have been and probably was the obstruction responsible for the bronchiectasis. In the proximal portion of this bronchiectasis, where no tumor exists, the glands are normal in their arrangement, while in the lower section there are no cartilage plates, so that it is reasonable to suppose that no glands



are normally present at this point. The alveolar spaces mentioned above are lined with cells that bear a great resemblance to glandular cells, but are also somewhat like the low columnar type of the terminal bronchioles. The smaller bronchioles in the immediate neighborhood of this distended one are quite irregular in shape; the mucosa, however, seems properly restrained by its basement membrane, and at no point can a distinct breaking through be discovered. Moreover, the cells of the small nests resemble more the glandular epithelium, and if these have originated from a bronchus, a metaplasia has occurred. Although the bronchioles are very irregular in their size and shape, there are no solid plugs of cells extending into the surrounding tissue as in the case of the tumor in the civet's lung. Inasmuch as it is improbable that a carcinoma arising from a bronchial wall would develop nests in a fibrous stroma without passing through some of the stages of an epithelioma and at the same time do so without leaving a trace in our sections (assuming that this occurred in the section of two millimeters which is missing), a carcinoma arising from the bronchial mucosa does not seem to be a diagnosis against which no objection can be raised. Again, the glands were normal proximally to this new growth, while no typical adenomatous structure can be found in or about it. Therefore, they must have ceased somewhere within the missing two millimeters, and at the point of their normal disappearance may have continued to develop in an atypical manner, extending along the fibrous sheath of the bronchiole, their extramembranous nests using the lymph channels as routes of extension. The alveolar epithelium must not be overlooked, but inasmuch as a large part of the atypical acini are outside the connective tissue adventitia of the bronchiole, the masses in the alveoli must be in a great measure secondary. The excessive amount of connective tissue around this neoplastic process is suggestive of a metastatic growth. There was no other growth in the animal's body from which to have metastasis.

While the exact origin of this tumor cannot be asserted, its most probable starting point appears to be the glands

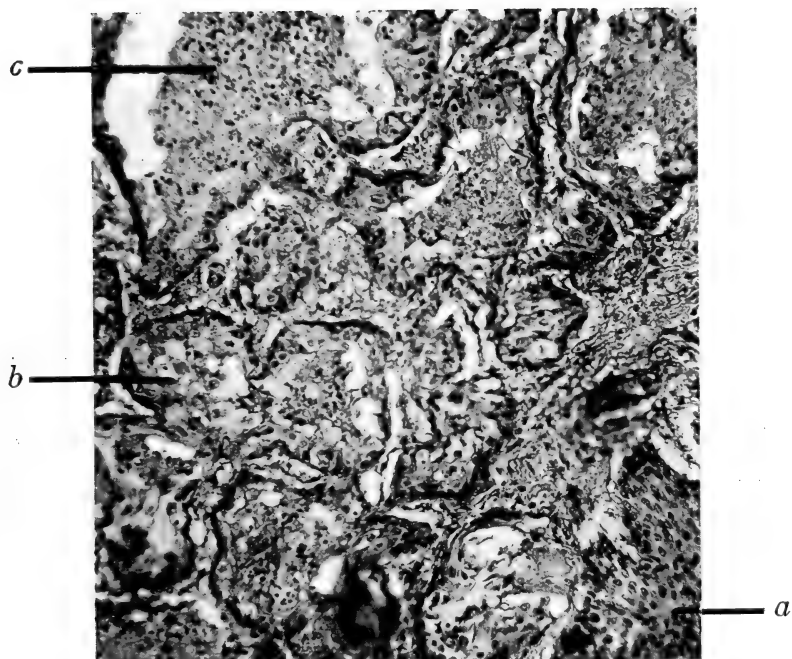
of the sub-mucosa of a bronchiole. An interesting feature of the microscopic anatomy of this bronchiole in relation to this tumor is that some of the glands extend between the cartilage plates into the adventitia in perfect histologic arrangement. This is not peculiar to this section.

*Civet.* This growth was found in the lung of a civet, quite by accident. A piece of lung was removed for microscopical examination, because there seemed to be a catarrhal pneumonia present. When seen under the microscope, an acute fibrinous pneumonia, parasites (*acanthocephalus*), and the following growth were found.

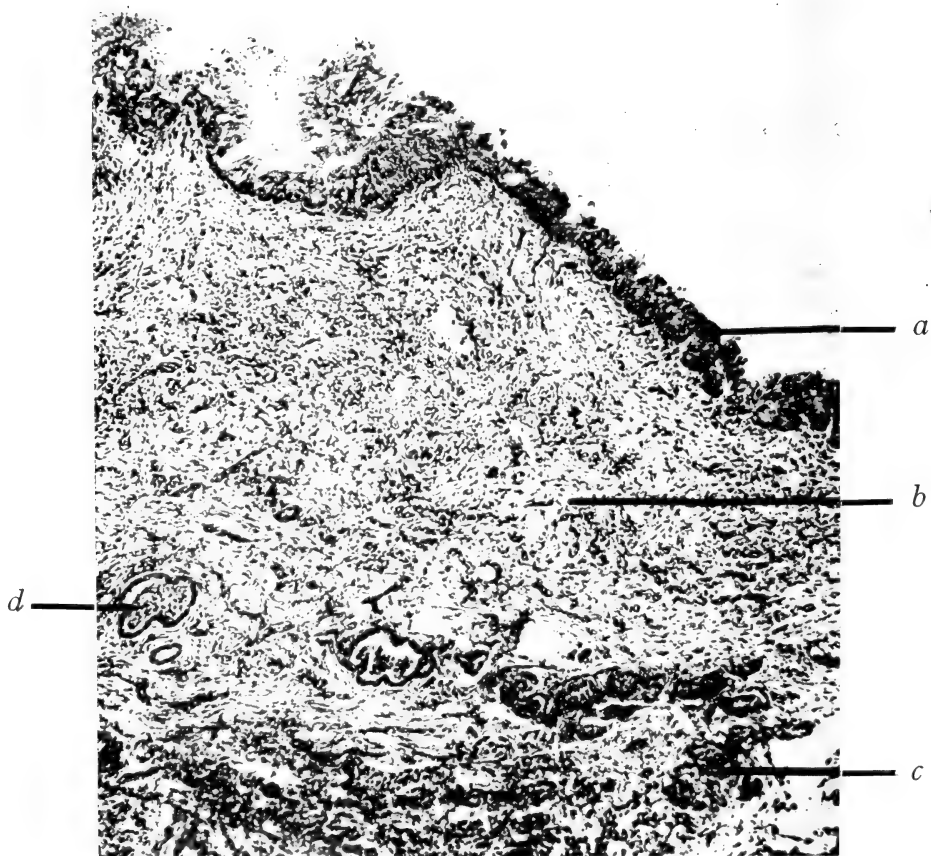
The area affected with the tumor formation was a bronchiole without cartilage or glands. The epithelial cells of the mucosa were six to twelve deep, being of low cylindrical shape on the basement membrane, becoming cuboidal and finally round or flattened toward the lumen of the air passage. The mucosa also extends in finger-like projections into the surrounding tissue. Around the bronchiole are irregular, large nests of epithelial cells, both with and without limiting membranes. These are large, pale cells with vesicular nuclei. In many of these nests central coagulation necrosis has occurred. They are typical cancer nests, apparently from this bronchiole. They take the stain in the same manner as the bronchiole epithelium, active proliferation is present in both, they do not form acini, nor are there any glandular structures in the neighborhood. Around other bronchi in the section, glands are present; but while they are probably more numerous than normal, the arrangement of the lining cells with the basement membrane is perfectly normal. Other bronchi and bronchioles are affected, but the process is most marked around the bronchiole first described. There are many alveoli in the vicinity filled partially or wholly with cancer cells. In this tumor there is no overgrowth of connective tissue.

Here is a true squamous carcinoma which has passed through the epithelioma stage.

These two neoplasms are both carcinomata, but strikingly different in cellular elements and arrangement. Generally speaking, the first reminds one of a scirrhus cancer of the



CIVET



WOOLLESS SHEEP

mamma, while the second is suggestive of a carcinoma portio uteri. The former conforms in many ways with the type called by Kaufmann (*Pathologische Anatomie*, 1904) the combined infiltrating and nodular form; its tendency to remain in or around the fibrous sheaths of the bronchiole gives evidence of this. The tumor of the civet's lung is probably the nodular form of Kaufmann, since it has spread rapidly beyond the adventitia, and is attacking and filling up the alveoli.

#### EXPLANATION OF PLATES.

*Civet*.—(Photomicrograph.)

- (a) Proliferated wall of bronchiole.
- (b) Cancer nests.
- (c) Necrotic centre.

*Sheep*.—(Photomicrograph.)

- (a) Proliferated wall of bronchiole.
- (b) Connective tissue overgrowth.
- (c) Irregular nests of cells.
- (d) Alveolar nests of cells.

I wish to acknowledge my thanks to Dr. Allen J. Smith for the Photomicrographs.

HERBERT FOX, M.D.,  
*Pathologist.*

LIST OF ADDITIONS TO THE MENAGERIE DURING THE YEAR  
ENDING FEBRUARY 28TH, 1907.

1906.

- March 5. 1 lark bunting and 1 red-winged blackbird presented by F. M. Deaver, Seymour, Texas. 2 pintail ducks, 1 gadwall, 2 diamond rattlesnakes, 1 harlequin snake, 11 black snakes, 2 corn snakes, 1 common garter snake, 3 Sacken's garter snakes, 2 hog-nosed snakes, 1 king snake and 1 ground rattlesnake purchased.
- " 7. 1 opossum presented by H. Ziegler, Philadelphia.
- " 9. 8 black snakes, 2 pine snakes, 4 common hog-nosed snakes, 1 king snake, 1 rainbow snake, 1 banded water-snake, 28 American green lizards and 42 wave-lined lizards purchased.
- " 11. 1 Chapman's zebra (♂) born in the Gardens.
- " 14. 1 raccoon presented by the Police of the Sixteenth District, Philadelphia.
- " 15. 1 surf scoter presented by Frederick C. Schmid, Philadelphia.
- " 16. 1 one-banded toucan purchased.
- " 17. 1 raccoon presented by Eugene Murter, Philadelphia.
- " 20. 1 Indian civet and 2 pairs of Reeves' pheasants purchased.
- " 22. 5 gray wolves born in the Gardens. 1 ground rattlesnake, 2 Allen's snakes, 4 common hog-nosed snakes, 1 indigo snake, 1 king snake, 1 red-bellied snake, 2 banded water snakes, 5 brown water snakes and 1 fence lizard purchased.
- " 23. 1 white-throated cebus presented by Master W. M. Gorham, Jr., Germantown.
- " 26. 2 ground rattlesnakes, 1 harlequin snake, 2 corn snakes, 2 common garter snakes, 2 common hog-nosed snakes, 4 fence lizards, 1 six-lined lizard and 1 Florida terrapin purchased.
- " 29. 1 Levaillant's amazon presented by Charles H. Lafferty, Philadelphia.
- " 31. 2 black and white lemurs, 1 African civet and 1 rose-crested cockatoo purchased. 1 raccoon presented by Frank E. Morris, Camden, N. J.
- April 1. 2 white-nosed coatis purchased. 4 common jackals born in the Gardens.
- " 4. 8 gray wolves born in the Gardens.
- " 5. 1 rough-legged buzzard presented by John Pfuelb, Bridesburg, Philadelphia. 1 harlequin snake, 3 chicken snakes, 1 common garter snake, 4 Sacken's garter snakes, 2 keeled green snakes, 1 banded water snake, 3 brown water snakes and 4 whip snakes purchased.
- " 10. 2 Canada porcupines presented by C. A. Potterfield, Charleston, W. Va.
- " 12. 1 Levaillant's amazon presented by Mrs. John B. Law, West Pittston, Pa.
- " 13. 2 ground rattlesnakes, 1 Sacken's garter snake, 7 hog-nosed snakes and 2 king snakes purchased.
- " 14. 2 pine snakes presented by F. J. Imfeld, Philadelphia.
- " 16. 1 bactrian camel (♀) born in the Gardens.
- " 17. 1 pine snake presented by J. Hope, Philadelphia.
- " 18. 6 prairie wolves born in the Gardens.

- April 22. 5 prairie wolves born in the Gardens. 1 garter snake presented by S. W. Seeley, Philadelphia.
- " 23. 6 rainbow snakes purchased.
24. 6 garter snakes and 1 water snake presented by D. H. March, Philadelphia.
- " 26. 1 black leopard, 1 panda, 1 black and white lemur, 1 bald eagle, 2 red-headed cardinals, 1 Amazonian guan, 1 white-crested guan and 1 Brazilian tortoise purchased.
- " 27. 1 blackish elephant tortoise and 2 leopard tortoises purchased. 1 red-tailed buzzard presented by A. Macht, Philadelphia. 1 alligator presented by Miss Marjorie Wistar Canby, Philadelphia, 1 alligator presented by Master William Marriott Canby, 3d, Philadelphia.
- " 28. 2 Egyptian geese purchased. 1 water snake presented by S. W. Seeley, Philadelphia.
- " 30. 1 American bison (♀) born in the Gardens.
- May 2. 1 alligator presented by Miss A. A. Porter, Philadelphia.
- " 3. 1 alligator presented by Master Philip Jamison, Philadelphia. 3 sloth bears purchased.
- " 5. 1 pine snake presented by William H. Cann, Camden, N. J.
- " 6. 2 Canada lynx purchased.
- " 7. 1 diamond rattlesnake, 7 western diamond rattlesnakes, 8 ground rattlesnakes, 2 yellow-bellied black snakes, 1 Emory snake, 1 chicken snake, 5 Marcy's garter snakes, 1 hog-nosed snake, 1 indigo snake, 2 Say's pine snakes, 1 whip snake, 1 ringed snake, 6 Graham's leaf-nosed snakes and 2 Faries' garter snakes purchased.
- " 8. 1 meadow mouse presented by Charles E. Ritter, Philadelphia.
- " 9. 3 chicken snakes, 6 garter snakes, 6 gopher tortoises, 6 six-lined lizards, and 4 fence lizards purchased.
- " 10. 1 raccoon and 6 young purchased. 1 common macaque presented by Mrs. C. Streibel, Philadelphia.
- " 11. 1 roseate cockatoo presented by Miss Mary C. Cresson, Norristown, Pa. 1 alligator presented by J. Hansen, Jr., Philadelphia, 2 black snakes, 2 chicken snakes, 5 corn snakes, 1 American glass snake, 3 hog-nosed snakes, 1 king snake, 1 scarlet snake, 4 banded water snakes, 3 brown water snakes, and 2 fence lizards purchased. 2 Swinhoe's pheasants born in the Gardens.
- " 12. 1 Indian antelope born in the Gardens.
- " 16. 10 bullfrogs presented by C. E. Ritter, Philadelphia.
- " 18. 1 Arabian gazelle presented by the crew of the U. S. S. "Brooklyn." 1 painted terrapin presented by Masters Buscher and Vaughn, Philadelphia.
- " 19. 1 box tortoise presented by F. W. Cressey, Philadelphia.
- " 20. 1 milk snake presented by Robert J. Kerth, Philadelphia. 1 box tortoise presented by Master Harry Ackley, Philadelphia. 1 alligator presented by Master Clarence Dannehower, Philadelphia.
- " 21. 2 black-handed spider monkeys purchased.
- " 22. 1 black lemur, 2 Swainson's lorikeets, 2 mealy red-poll linnets, 2 nonpareils, 1 chaffinch, 1 mountain finch, 1 bullfinch, 2 California pine snakes, 1 common pine snake, 2 Botta's snakes,

- 1 yellow-bellied black snake, 3 red-skinned garter snakes, 12 elegant garter snakes, 3 Burnett's lizards, 3 many-keeled lizards and 2 amphiurnas purchased.
- May 23. 1 meadow mouse presented by Charles E. Ritter, Philadelphia.  
1 alligator presented by Mrs. W. D. B. Ainey, Montrose, Pa.  
4 banded rattlesnakes purchased.
- " 24. 1 Japanese deer and 4 Amherst's pheasants born in the Gardens.  
1 rhesus monkey, 2 weeper cebus monkeys, 2 black lemurs,  
1 tamandua ant-eater, 1 Peruvian squirrel, 1 Guatemalan amazon,  
2 cactus conures, 2 chestnut-breasted finches, 2 masked grass finches,  
2 yellow-rumped finches, 3 masked waxbills and 2 singing seedeaters purchased.
- " 25. 2 chukar partridges purchased.
- " 26. 5 golden pheasants born in the Gardens. 1 alligator presented by  
Miss Mary R. Hantsch, Roxborough, Pa.
- " 27. 1 woodcock presented by Miss Isabelle Lovett, Philadelphia.
- " 30. 1 pine snake presented by William Harris, Philadelphia. 1 painted  
terrapin presented by Master Charles Peacock, Philadelphia.
- June 1. 2 Amherst's pheasants born in the Gardens.
- " 3. 1 alligator presented by Master H. S. Bitting, Jr. Philadelphia. 1  
alligator presented by William W. Snelling, Philadelphia. 1  
spotted terrapin presented by Master George Harrison, Philadelphia.
- " 4. 5 common water snakes presented by D. H. March, Philadelphia.
- " 5. 1 fallow deer born in the Gardens.
- " 7. 1 fallow deer born in the Gardens.
- " 8. 1 bullfrog and 1 DeKay's snake presented by Charles E. Ritter,  
Philadelphia. 2 Reeves' pheasants born in the Gardens.
- " 11. 3 Canada geese born in the Gardens. 1 striated terrapin presented  
by Miss Ruth Johnson, Rosemont, Pa. 1 DeKay's snake presented  
by Charles E. Ritter, Philadelphia.
- " 12. 4 summer ducks born in the Gardens.
- " 13. 1 red deer born in the Gardens.
- " 14. 1 DeKay's snake and 2 garter snakes presented by Charles E.  
Ritter, Philadelphia.
- " 15. 2 green monkeys, 2 anubis baboons, 1 Malayan tapir (♂), 1 common  
troupial, 1 white-browed amazon, 2 gray parrots, 1 grand eclectus,  
1 nose-horned viper, 2 harlequin snakes, 1 red-bellied snake,  
1 water snake, 2 musk turtles and 1 gopher tortoise purchased.  
2 common macaques exchanged.
- " 16. 2 ring-tailed lemurs purchased.
- " 18. 1 orange-winged amazon presented by L. Colby Ambrose, Philadelphia.
- " 19. 1 skunk presented by Samuel Hart, Doylestown, Pa. 1 alligator  
presented by Samuel Crothers, Philadelphia.
- " 20. 1 California king snake purchased.
- " 21. 1 woodchuck presented by Henry T. Bell, Elmer, N. J. 2 banded  
basilisk lizards presented by Raymond L. Ditmars, New York.  
3 alligators presented by F. M. Johnson, Philadelphia.
- " 25. 4 Reeves' pheasants born in the Gardens. 2 painted terrapins  
presented by William H. Intrim, Philadelphia. 1 water snake  
presented by James Quigley, Philadelphia. 3 alligators presented  
by Harry M. Read, Philadelphia.



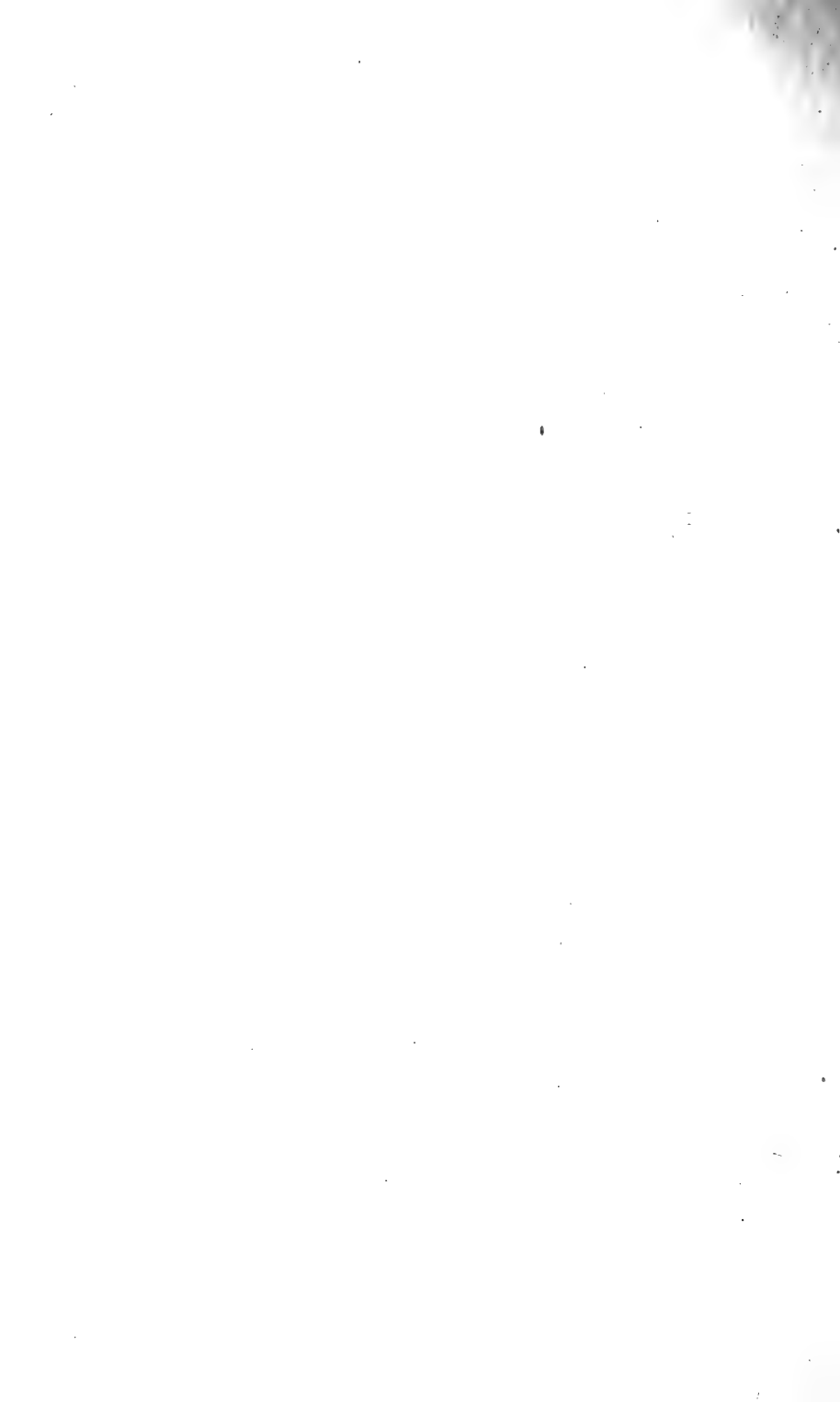
- June 26. 2 red-tailed buzzards presented by Frank Schenuit, Philadelphia.  
 2 alligators presented by Dr. Sherman E. Ayars, Philadelphia.
- " 28. 1 raccoon presented by Joseph Hales, Philadelphia.
- " 29. 2 roseate spoonbills and 2 Cuban iguanas purchased. 1 golden-shafted woodpecker presented by Master Raymond Messerve, Philadelphia. 1 garter snake presented by Mrs. Samuel M. Harrison, Media, Pa.
- " 30. 1 Levaillant's amazon presented by Miss M. E. Edwards, Philadelphia. 1 alligator presented by Mrs. F. H. Zunkilton, Philadelphia.
- July 1. 1 Indian antelope born in the Gardens.
- " 2. 1 prairie dog presented by John M. Ulrich, Philadelphia. 1 golden-naped amazon presented by George L. Flagg, Philadelphia. 1 Acadian owl presented by Master Fred Hoffman, Philadelphia.
- " 3. 1 milk snake and 1 garter snake presented by Dr. Thomas Biddle, Philadelphia.
- " 4. 1 changeable tree frog presented by Master Daniel L. Hoffman, Philadelphia.
- " 5. 4 summer ducks born in the Gardens.
- " 7. 1 gray squirrel presented by Samuel M. Gerhard, Philadelphia. 1 bullfinch presented by E. C. Vahle, Philadelphia.
- " 8. 1 Indian antelope born in the Gardens. 1 alligator presented by Mrs. S. Clapham, Philadelphia.
- " 10. 1 mealy amazon and 4 barn owls purchased. 1 spiny soft-shelled turtle presented by John Waldman, Philadelphia.
- " 14. 1 alligator presented by Miss E. Bradley, Philadelphia.
- " 15. 3 diamond rattlesnakes, 3 black snakes, 4 common garter snakes, 1 keeled green snake, 3 hog-nosed snakes, 2 indigo snakes, 2 king snakes, 4 rainbow snakes, 4 brown water snakes and 2 whip snakes purchased.
- " 16. 1 gray squirrel presented by Oscar W. Brehmer, Philadelphia.
- " 17. 1 robin presented by Mr. Fienhold, Philadelphia.
- " 21. 1 box tortoise presented by Raymond Gettz, Manoa, Pa.
- " 23. 1 American otter purchased. 27 Faries' garter snakes born in the Gardens.
- " 24. 1 barred owl purchased. 1 Carolina rail presented by William Cloak, Philadelphia.
- " 25. 1 diamond rattlesnake, 1 black snake, 2 garter snakes, 1 keeled green snake, 6 hog-nosed snakes, 2 pine snakes, 4 banded water snakes, 1 brown water snake, 1 Holbrook's water snake, 2 fence lizards, 3 Florida terrapins and 1 box tortoise purchased.
- " 26. 1 white-handed gibbon and 1 gibbon purchased, 1 common water snake presented by Master W. Rowland Collins, Camden, N. J.
- " 27. 2 white breasted finches, 2 pintail ducks, 2 tufted ducks and 1 Gila monster purchased. 3 Muhlenberg's terrapins and 1 spotted terrapin presented by H. A. Walters, Philadelphia.
- " 28. 1 box tortoise presented by Miss Mary Furbrow, Philadelphia. 2 pale-headed parakeets purchased.
- Aug. 2. 1 barn owl presented by Mrs. W. H. Yerkes, Philadelphia.
- " 3. 7 red-headed ducks born in the Gardens. 1 great-horned owl presented by Herman Ehinger, Philadelphia.
- " 4. 1 woodchuck presented by E. J. Davis, Port Norris, N. J.

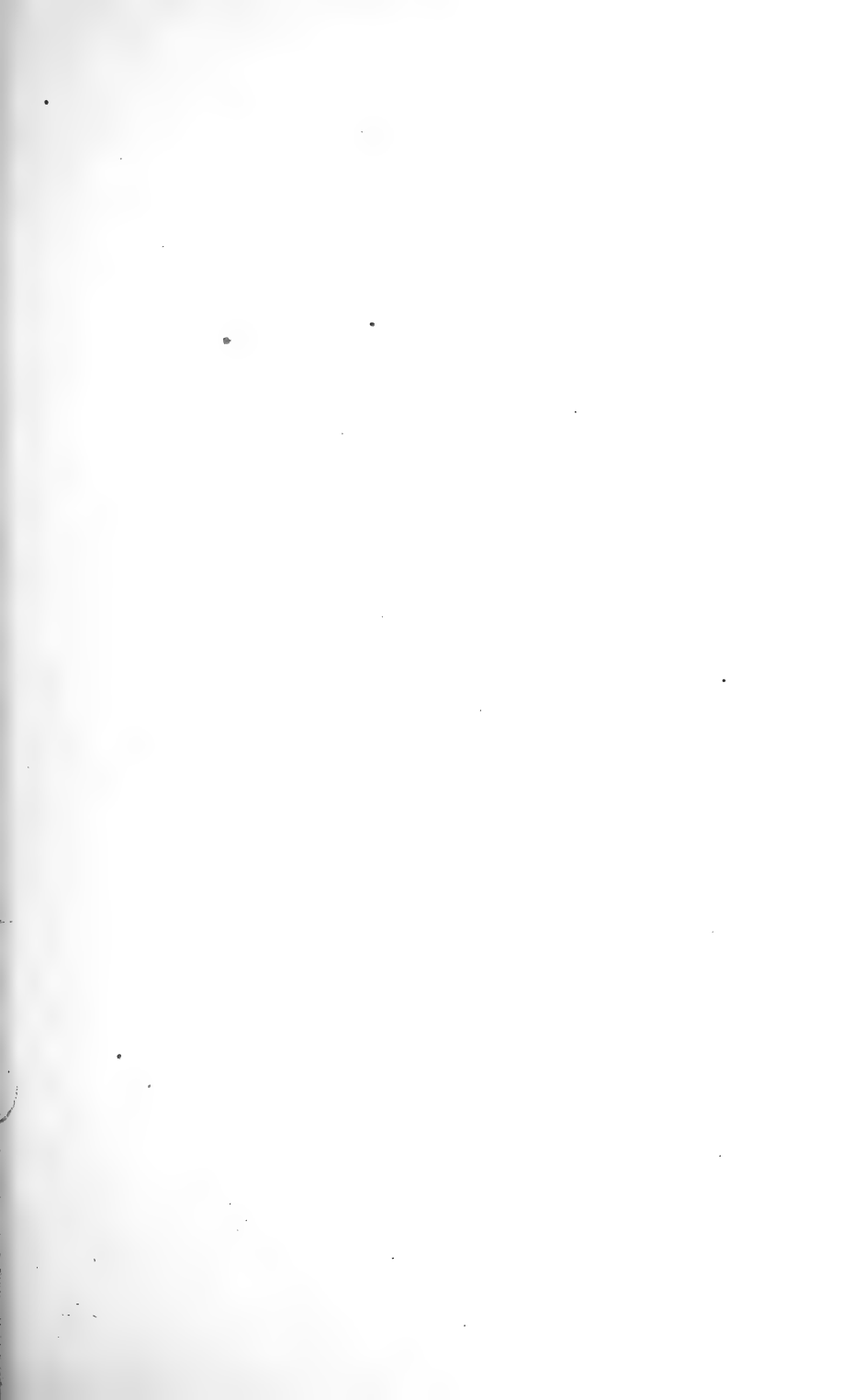
- Aug. 5. 2 woodchucks presented by Dr. Thomas Biddle, Lenox, Mass.  
2 hairy-rumped agoutis born in the Gardens. 1 little blue heron purchased.
- " 7. 1 smooth green snake presented by Dr. Thomas Biddle, Lenox, Mass.
- " 8. 1 Malayan civet presented by Alfred R. Heath, S. S. "Lackawanna."  
1 blue and yellow macaw and 3 paradise whydah birds purchased.
- " 10. 1 hog deer born in the Gardens. 2 copperheads, 1 mountain black snake, 2 garter snakes, 1 black snake, 1 reddish milk snake and 3 water snakes purchased.
- " 11. 1 bullfrog presented by William H. Sheetz, Philadelphia.
- " 14. 4 common vipers purchased. 1 red salamander presented by Charles E. Ritter, Philadelphia.
- " 15. 1 painted terrapin presented by Master Walter Rockey, Philadelphia.
- " 16. 1 cedar bird presented by Mrs. John H. Nichols, Jr., Philadelphia.  
2 mute swans and 1 white stork purchased.
- " 17. 9 DeKay's snakes born in the Gardens.
- " 18. 3 western diamond rattlesnakes, 2 indigo snakes, 3 Say's pine snakes and 2 whip snakes purchased.
- " 19. 1 chaparral cock purchased.
- " 20. 1 box tortoise presented by George Bradshaw, Philadelphia.
- " 21. 3 rosehill parakeets and 3 yellow-shouldered whydah birds purchased. 1 hog-nosed snake presented by F. Green, Philadelphia.
- " 22. 2 pigeon hawks presented by Thomas H. Litz, Osceola Mills, Pa.  
1 indigo snake, 1 pine snake, 1 garter snake and 1 hog-nosed snake purchased.
- " 23. 2 Angora goats presented by Dr. Thomas Biddle, Philadelphia.  
2 red squirrels presented by Miss Josephine Lindemayer, Philadelphia. 1 pine snake purchased.
- " 25. 2 Indian porphyrios, 1 ring-necked parakeet, 1 rosy-billed duck, 1 red-crested duck, 1 blue-headed pigeon and 1 banded rattlesnake purchased. 1 belted kingfisher presented by John Cavanaugh, Philadelphia. 1 box tortoise presented by George Coleman, Philadelphia.
- " 28. 1 Canadian porcupine purchased. 2 West Indian terrapins and 1 mud turtle presented by F. H. Sheldon, Philadelphia.
- " 30. 1 red monkey purchased. 1 white-fronted amazon presented by Mrs. J. C. Bareiss, Philadelphia. 23 brown water snakes born in the Gardens.
- " 31. 1 red-tailed buzzard presented by J. S. Dewalt, Philadelphia.
- Sept. 3. 1 Indian antelope born in the Gardens. 1 western diamond rattlesnake, 2 Say's rattlesnakes, 2 Marcy's garter snakes, 1 Say's king snake, 7 Say's pine snakes, 2 western sand snakes and 2 whip snakes purchased.
- " 5. 1 Dorcas gazelle (♂) born in the Gardens. 1 black snake, 1 keeled green snake, 2 hog-nosed snakes, 1 indigo snake, 1 king snake, 2 brown water snakes and 2 whip snakes purchased.
- " 6. 2 paradise whydah birds, 5 darters, 3 Sacken's garter snakes, 2 hog-nosed snakes and 1 whip snake purchased. 1 bald eagle presented by Dr. Joseph Kalbfus, Harrisburg, Pa. 1 spiny soft-

- shelled turtle presented by H. B. Kervan, Norwalk, Fla. 16 red salamanders presented by Charles E. Ritter, Philadelphia.
- Sept. 7. 1 St. Thomas conure presented by Mrs. A. Patton, Philadelphia.
- " 8. 1 barn owl presented by Masters George Rogers and Raymond Wendell, Collingswood, N. J., 1 box tortoise presented by Master Earl Dunlap, Philadelphia. 2 painted terrapins presented by Master Charles Hill, Philadelphia. 1 hog-nosed snake presented by Master Stryker Beaumont, Philadelphia.
- " 9. 1 alligator presented by Morris Kotsuff, Philadelphia.
- " 10. 1 canary presented by Miss Annie Withers, Philadelphia.
- " 11. 1 garter snake and 1 bullfrog presented by Douglass March, Philadelphia.
- " 12. 1 green monkey and 3 Hardwick's mastigures purchased.
- " 14. 1 lion (♀) purchased. 1 alligator presented by Thomas Kilderry, Philadelphia.
- " 15. 1 Geoffroy's marmoset presented by Mrs. S. H. Lewis, Seaside Park, N. J.
- " 16. 1 undulated grass parakeet presented by P. F. Harpel, Philadelphia.
- " 17. 2 red bats presented by R. M. Eddy, Philadelphia.
- " 18. 1 yellow-shafted woodpecker presented by William H. Young, Philadelphia. 1 alligator presented by C. K. Zithrin, Philadelphia.
- " 19. 1 mocking bird presented. 1 Florida gallinule presented by Walter L. Scott, Philadelphia.
- " 21. 1 Levaillant's amazon presented by William Leopold, Philadelphia.
- " 22. 1 yellow-shouldered amazon presented by Geo. H. B. Martin, Philadelphia. 10 young copperhead snakes presented by Master Howard S. Trivelpiece, Philadelphia. 1 copperhead purchased.
- " 23. 2 DeKay's snakes and 2 common garter snakes presented by Charles E. Ritter, Philadelphia.
- " 24. 1 brown thrush presented by Roy Montague, Philadelphia. 1 whip-poor-will presented by W. S. Bennett, Philadelphia. 1 Virginia rail presented by Mrs. J. E. Close, Philadelphia.
- " 26. 1 box tortoise presented by Reuben Scheifele.
- " 29. 1 white-collared mangabey and 2 radiated tortoises purchased. 1 orange-winged amazon presented by Mrs. C. B. Chubbuck, Reading, Pa.
- Oct. 2. 1 Canada porcupine purchased. 1 box tortoise presented by Master Charles Magee, Philadelphia. 1 spotted newt presented by James H. Murray, Philadelphia.
- " 3. 2 Livingstone's elands (♂ and ♀) and 1 lion (♀) purchased.
- " 4. 6 Gila monsters purchased.
- " 5. 3 American elk (♂ and ♀ ♀) presented by The New York Zoological Society. 1 DeKay's snake presented by F. W. Cressey, Philadelphia.
- " 6. 1 hog deer born in the Gardens. 1 Angolan vulture purchased.
- " 7. 1 black snake presented by William H. Ennis, Ardmore, Pa.
- " 8. 1 brown thrush presented by John Thudium, Philadelphia. 3 alligators presented by James V. Devenny, Philadelphia.
- " 9. 1 Canada porcupine purchased. 1 American coot presented by C. A. Harris, Ardmore, Pa. 13 red-eared terrapins, 7 mar-

- gined painted terrapins, 3 Le Suer's terrapins, 2 Blanding's tortoises, 4 Pacific terrapins, 2 Troost's terrapins, 6 diamond-back terrapins, 2 musk turtles, 1 soft-shelled turtle and 2 gopher tortoises presented by Frederick H. Shelton, Philadelphia.
- Oct. 13. 1 chipmunk presented by Charles E. Ritter, Philadelphia.
- " 15. 3 American crows purchased.
- " 16. 1 Canada porcupine presented by Otto Behr, Lopez, Pa.
- " 17. 1 springbok (♂), 2 nine banded armadillos, 5 water moccasins, 1 harlequin snake, 4 ground rattlesnakes, 1 chicken snake, 4 glass snakes, 2 keeled green snakes, 6 hog-nosed snakes, 3 indigo snakes, 4 king snakes, 5 pine snakes, 2 red-bellied snakes, 1 scarlet snake, 1 whip snake and 1 fence lizard purchased. 1 raccoon presented by J. B. Marshall, Lansdowne, Pa. 1 alligator presented by Dr. F. L. Hamilton, Chester, Pa. 3 ground rattlesnakes presented by Harvey H. Bard, Norwalk, Fla. 4 ground rattlesnakes presented by F. B. Kervan, Norwalk, Fla.
- " 18. 6 burrowing owls purchased.
- " 20. 1 fish hawk presented by G. Oettinger, Philadelphia.
- " 22. 1 alligator presented by Karl Veigt, Philadelphia.
- " 24. 1 alligator presented by Mrs. James, Philadelphia. 4 water moccasins, 4 ground rattlesnakes, 3 harlequin snakes, 12 black snakes, 2 common garter snakes, 1 Sacken's garter snake, 8 hog-nosed snakes, 2 indigo snakes, 2 king snakes, 2 banded water snakes and 2 whip snakes purchased.
- " 25. 1 chewink captured in the Gardens. 1 Say's pine snake presented by William Maguire, Philadelphia.
- " 30. 1 Levaillant's amazon presented by John Ranft, Philadelphia. 4 Florida terrapins, 2 Mobile terrapins and 1 red-bellied terrapin presented by F. H. Shelton, Philadelphia.
- Nov. 3. 1 pied-billed grebe presented by Henry Haas, Chester, Pa. 1 screech owl presented by Joseph Medicus, Jr., Philadelphia.
- " 4. 1 white-throated cebus presented by Mrs. Joseph Haines, Philadelphia. 1 alligator presented by Miss Viola Roesch, Philadelphia.
- " 6. 2 American green lizards presented by Francis Astley, Philadelphia.
- " 10. 2 bald eagles, 1 spectacled owl, 1 common linnet, 2 common siskins, 2 skylarks, 1 yellow-bellied songster, 1 cutthroat finch, 1 paradise whydah bird, 2 orange-cheeked finches, 8 amadavine finches, 2 African silverbills, 2 hooded finches and 2 maja finches purchased. 1 chestnut-bellied finch, 2 black-headed finches, 2 ultramarine weavers, 2 red-beaked weavers and 1 weaver purchased. 1 alligator presented by Mrs. W. H. Morrell, Philadelphia.
- " 11. 2 lions (♂ and ♀) purchased.
- " 19. 1 alligator presented by Mrs. William M. Neal, Philadelphia. 9 prairie dogs, 2 Loring's kangaroo rats, 4 little gray harvest mice, 7 Texas white-footed mice, 2 Attwater's white-footed mice, 4 Texas cotton rats, 4 western diamond rattlesnakes, 10 Marcy's garter snakes, 1 western sand snake and 1 whip snake purchased.
- " 20. 1 Acadian owl presented by Peter McGillin, Philadelphia. 1 Attwater's white-footed mouse born in the Gardens.

- Nov. 23. 1 ring-necked parrakeet and 1 crested ground parrakeet presented by A. J. Drexel Biddle. Philadelphia.
- " 26. 1 copperhead presented by Clarence B. Moore. Philadelphia.
- " 27. 8 amadavine finches, 1 maja finch and 1 ultramarine weaver bird purchased.
- " 30. 1 black snake presented by Clarence B. Moore, Philadelphia.
- Dec. 2. 1 alligator presented by Benjamin Hess, Philadelphia.
- " 4. 1 opossum presented by C. Y. Abbott, Philadelphia. 1 American crow presented by W. Ball, Jr., Philadelphia.
- " 6. 1 opossum presented by Virgil Pangborne, Philadelphia.
- " 11. 9 Sacken's garter snakes born in the Gardens.
- " 12. 3 canvas-back ducks, 2 pin-tailed ducks, 3 shoveller ducks, 2 little black-headed ducks, 3 gadwalls, 1 green-winged teal, 1 Harris' buzzard and 1 white-tailed buzzard purchased.
- " 15. 8 red salamanders presented by Charles E. Ritter, Philadelphia.
- " 18. 2 gray squirrels presented by John F. Pole, Philadelphia.
- " 19. 2 common European buzzards purchased.
- " 22. 1 hybrid baboon, *Papio langheldi* (♂) and *P. cynocephalus* (♀), born in the Gardens.
- " 28. 2 mocking birds presented by J. Cugley, Philadelphia.
- " 29. 1 lesser sulphur-crested cockatoo presented by Mrs. O. Rosholm, Philadelphia.
- " 31. 4 common water snakes and 1 bullfrog presented by C. Drum, Philadelphia. 2 painted terrapins and 2 bullfrogs presented by F. W. Cressey, Philadelphia.
- 1907.
- Jan. 4. 6 elegant garter snakes, 2 many-keeled lizards, 4 Pacific tree frogs, 4 warty newts, 4 side-spotted salamanders, 1 mottled salamander and 1 Oregon salamander purchased.
- " 5. 1 spotted terrapin presented by Arthur Moses. Philadelphia.
- " 8. 1 common opossum presented by H. M. Eilenberg, Phillipsburg, N. J.
- " 23. 1 bald eagle presented by C. E. Warner Co, Philadelphia.
- " 26. 1 black bear born in the Gardens.
- Feb. 3. 1 Canada goose, 1 brant goose and 2 red-headed ducks purchased.
- " 6. 5 wild turkeys purchased.
- " 10. 7 dingos born in the Gardens. 1 spotted munia finch presented by P. F. Harpel. Philadelphia.
- " 13. 2 diamond rattlesnakes purchased.
- " 15. 1 emperor boa purchased.
- " 18. 1 water snake and 1 garter snake purchased.
- " 19. 2 polar bears (♂ and ♀) by purchase and exchange. 3 red-headed weavers purchased.
- " 21. 2 common kestrels purchased.
- " 28. 1 weeper cebus presented by John H. McFadden, Philadelphia.



















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